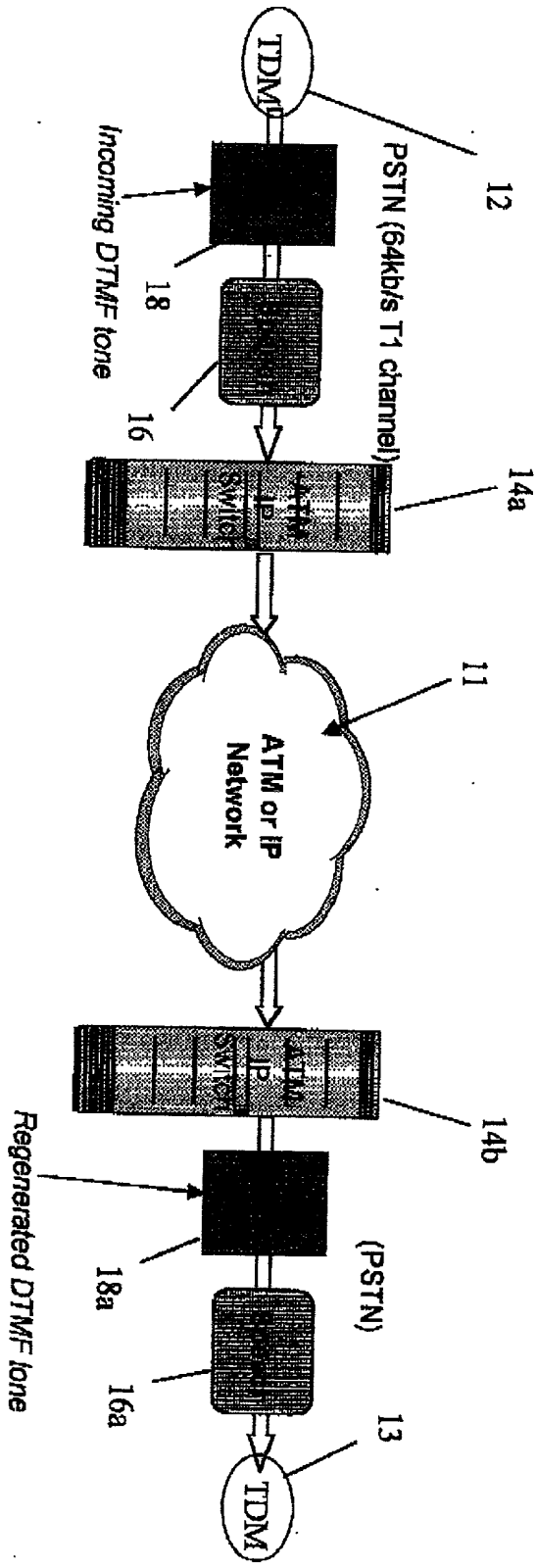

Figure 1

09/760,201 - 020104

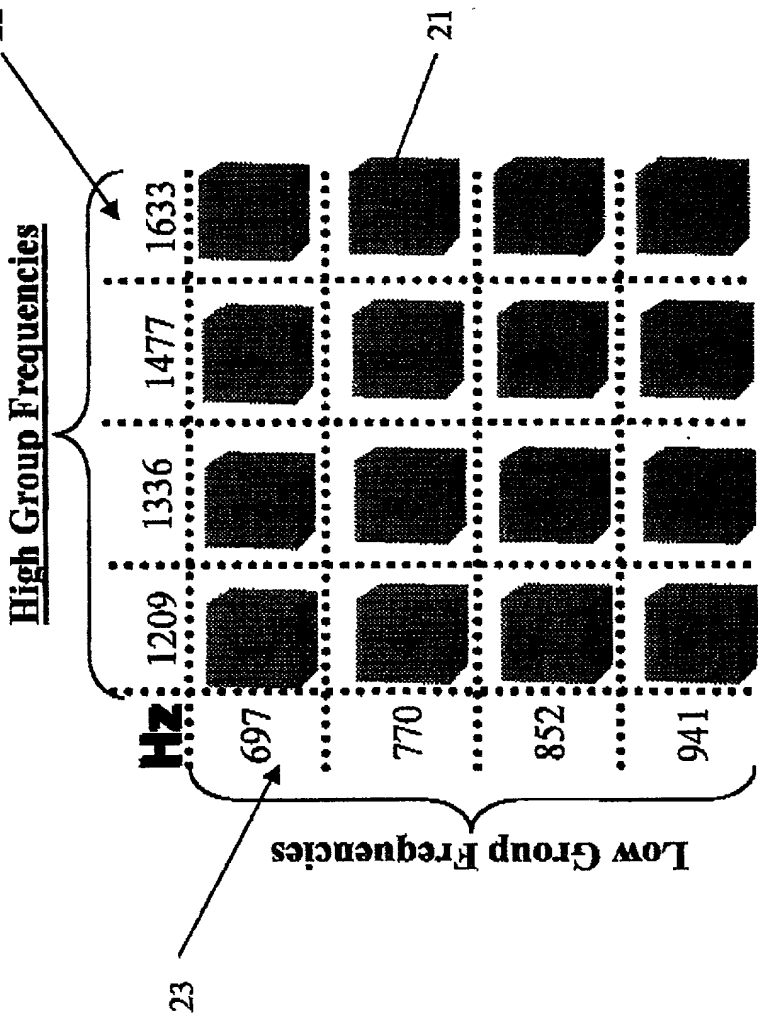
22
21
High Group Frequencies
1633
1477
1336
1209
Hz
697
770
852
941
Low Group Frequencies
23

Figure 2

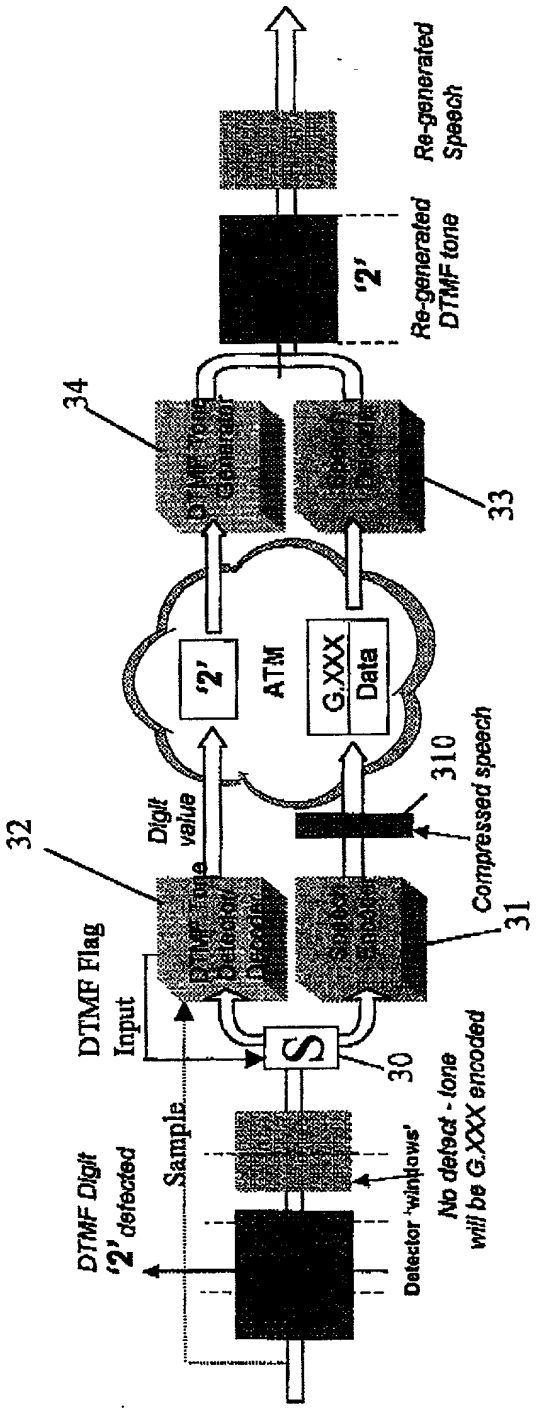
Re-generated Speech
Re-generated DTMF tone
'2'
34
33
ATM
'2'
G.XXX
Data
Digit value
310
Compressed speech
32
31
DTMF Flag
Input
S
30
Sample
DTMF Digit '2' detected
Detector 'windows'
No detect - tone will be G.XXX encoded

Figure 3

02 FEB '01 15:33 FROM HARLOW IP LAW GROUP TO LEE SMITH PAGE.028/033

8	7	6	5	4	3	2	1
Redundancy		Time Stamp					
RES		Signal Level (0 to -31dBm0)					
Digit Type		Digit Code (0, 1,2, …, b,c,d)					
Message Type = 000010							
CRC-10							

Figure 4

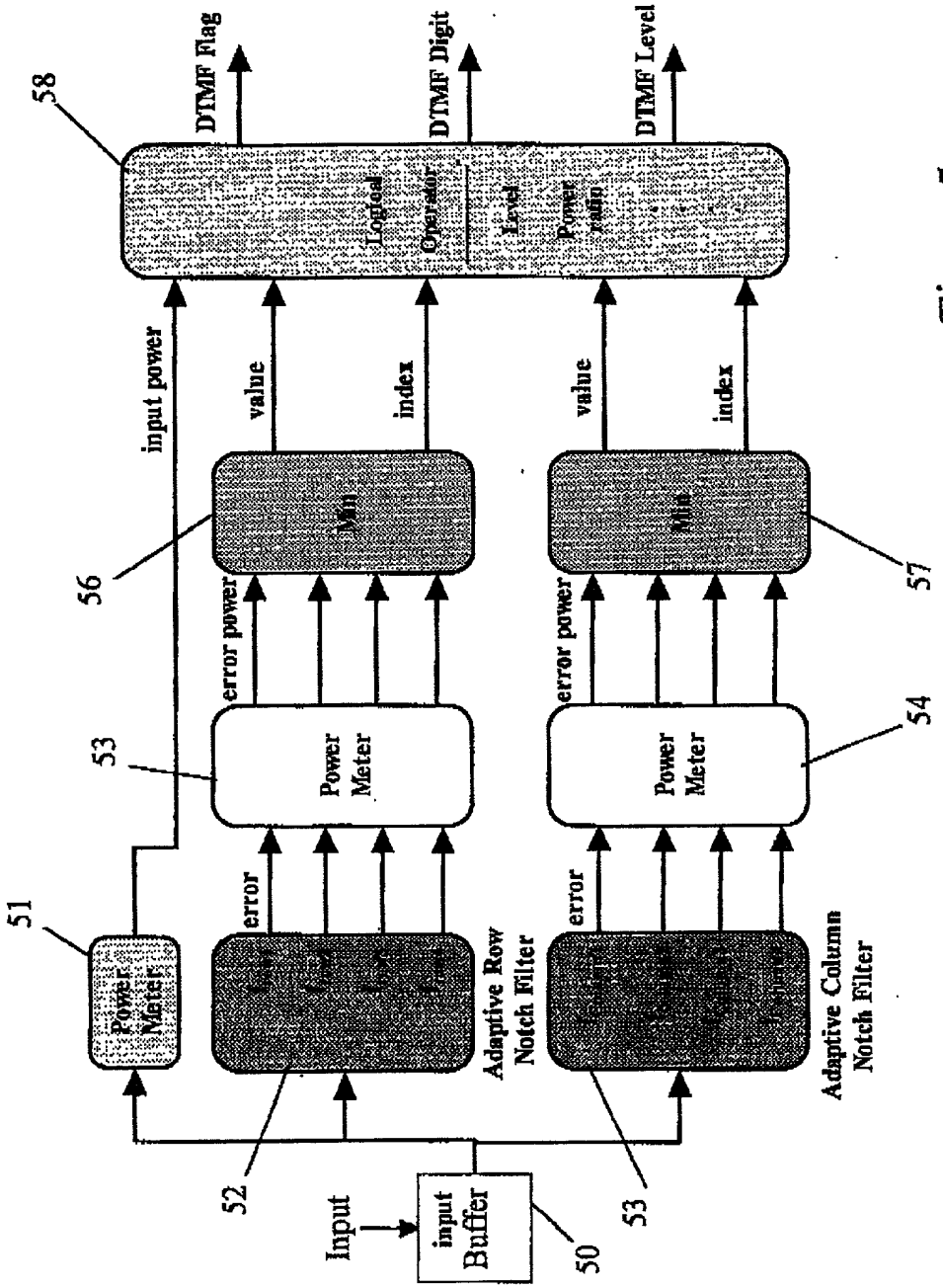
58
DTMF Flag
DTMF Digit
DTMF Level
Logical Operator
Level
Power ratio
input power
value
index
value
index
56
Min
Min
57
error power
error power
53
Power Meter
Power Meter
54
51
Power Meter
error
error
Adaptive Row Notch Filter
Adaptive Column Notch Filter
52
53
Input
input Buffer
50

Figure 5

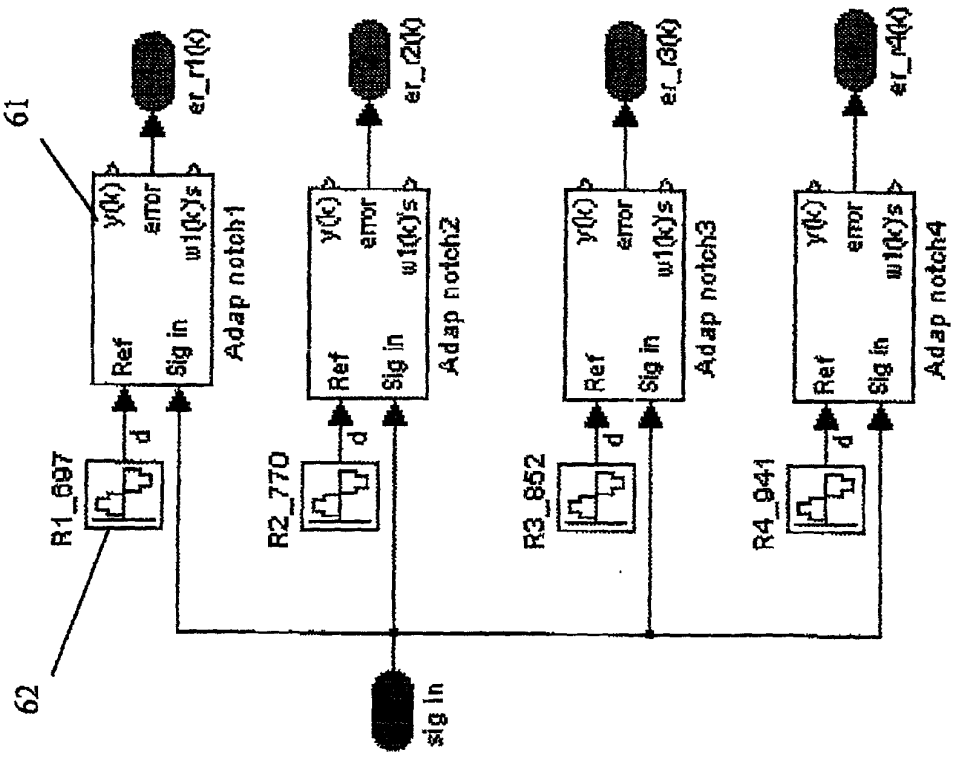
61
62
y(k)
error
w1(k)s
Ref
Sig in
Adap notch1
Adap notch2
Adap notch3
Adap notch4
d
R1_697
R2_770
R3_852
R4_941
er_r1(k)
er_r2(k)
er_r3(k)
er_r4(k)
sig in

Figure 6

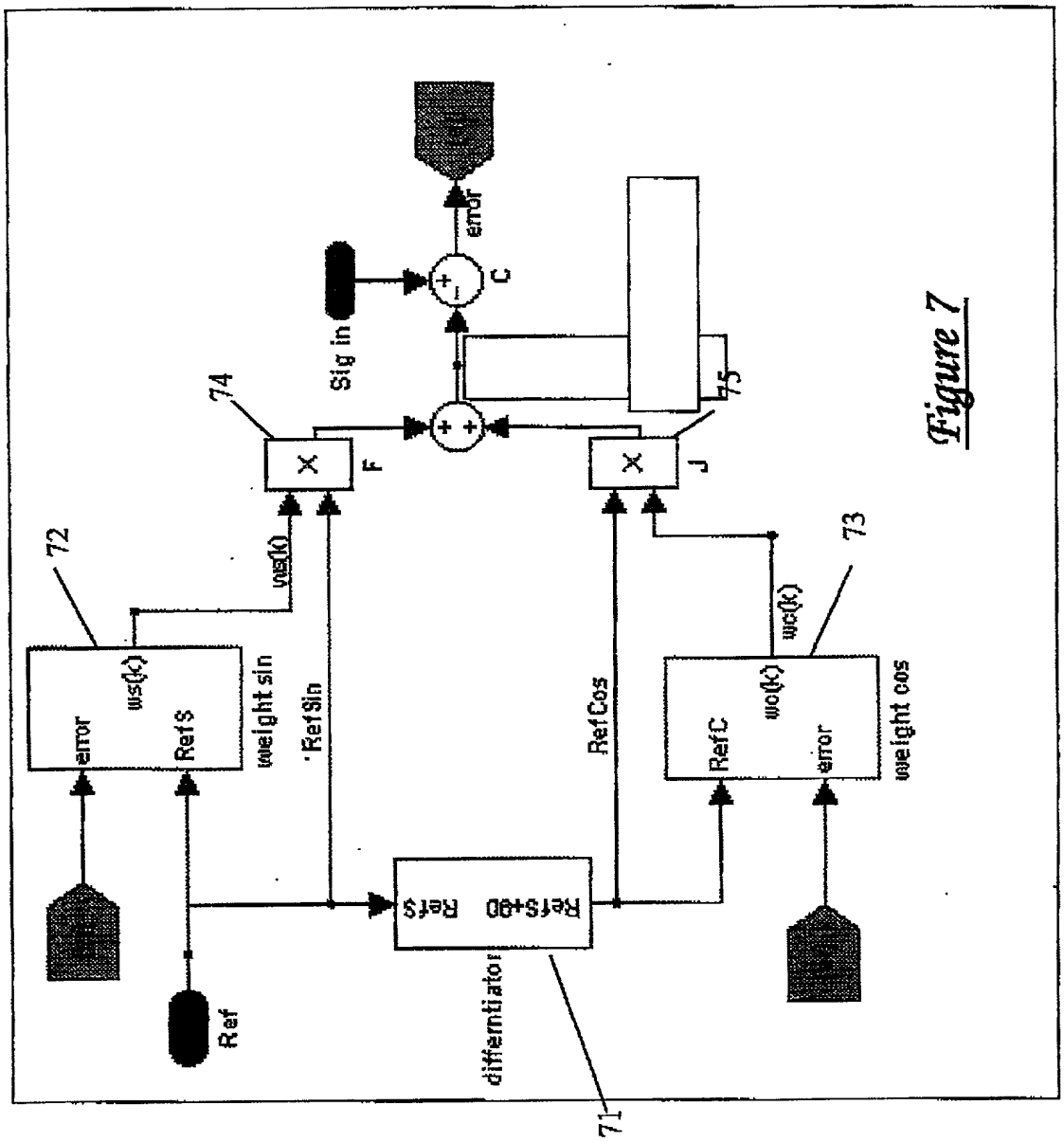
error
C
Sig in
74
F
X
75
J
X
72
ws(k)
error
RefS
weight sin
wss(k)
RefSin
RefCos
73
wc(k)
RefC
wc(k)
error
weight cos
RefS+90
RefS
differntiator
Ref
71

Figure 7

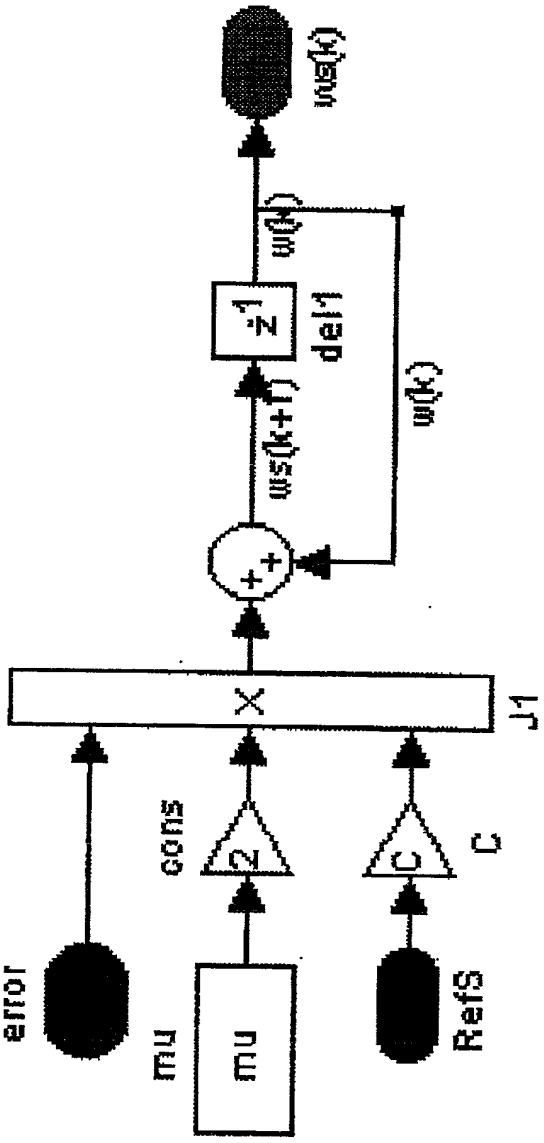

Figure 8

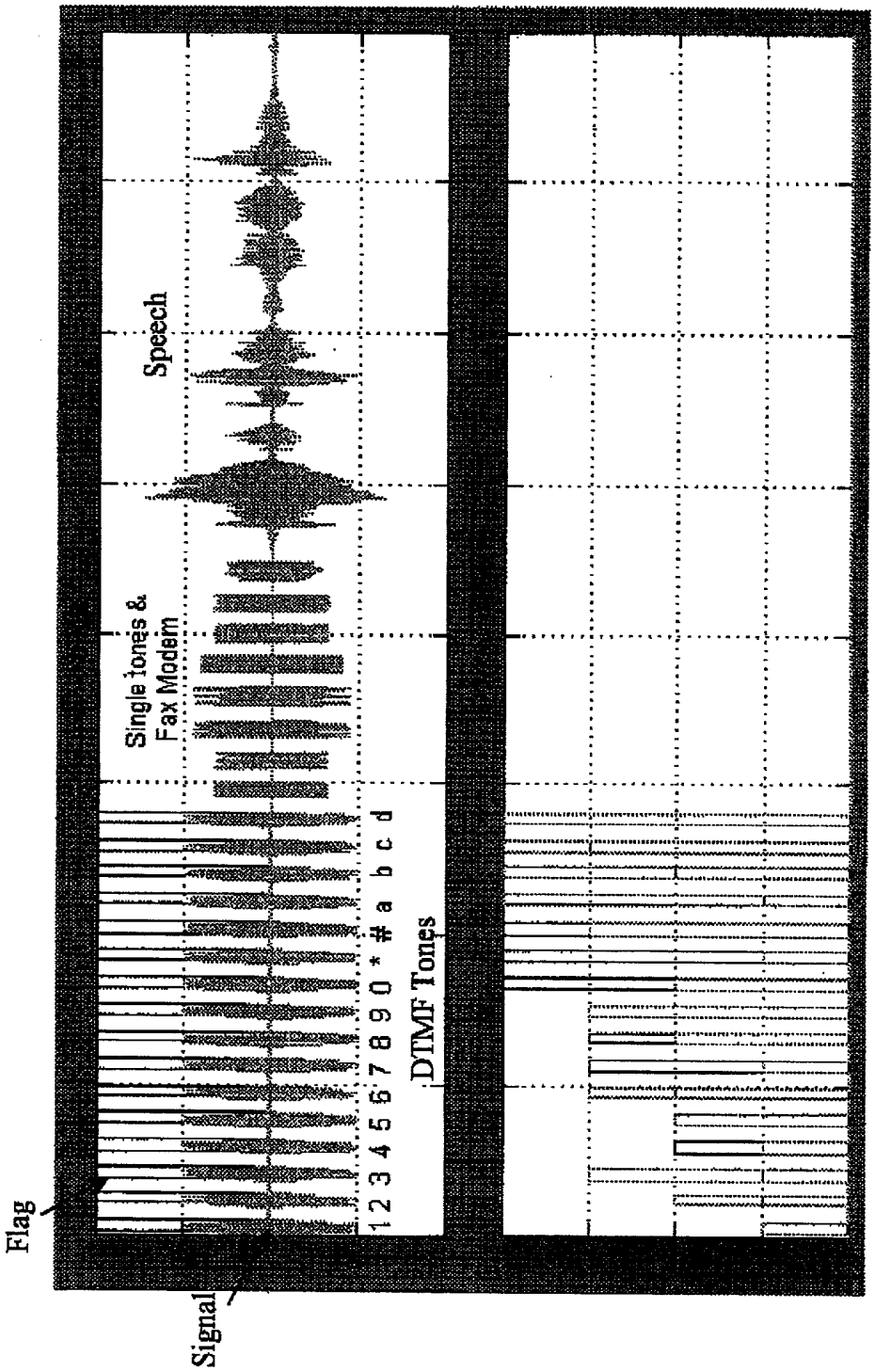
Speech
Single tones &
Fax Modem
1 2 3 4 5 6 7 8 9 0 * # a b c d
DTMF Tones
Flag
Signal

Figure 9